

From bogey mountains to funny houses

Children's desires for play environment

Pirkko Hyvönen

Marjaana Kangas

University of Lapland, Finland

THIS STUDY ANSWERS the following questions: 'In what kinds of environments do preschool children want to play?' and 'In what kinds of environments do boys and girls want to play?' Methodologically, the study draws on grounded theory, with data collected among Finnish preschoolers through 15 creation sessions with 49 children from six to seven years of age. Children prefer emotional play worlds, where excitement and amusement can be experienced and where collaborative activities and nature are afforded. Girls created scary and happy play worlds and boys created worlds of aggression and care. Emotional worlds indicate: (1) rich and varied emotions; (2) a desire for physical activity and nature; and (3) common and divergent emotional worlds of the genders. The outcomes have been utilised in designing pilot playful learning environments (PLE) and they will be useful in developing PLEs and play to meet the challenges of education.

Introduction

THE AIM OF THE CORE curriculum in Finnish pre-primary education (National Board of Education, 2000) is to improve children's capacity for learning when they are taught new facts and new skills through play. The term 'preschool', as used in Finland, refers to voluntary but formal preparatory education in primary school or day care centres. Children should experience a vast array of play opportunities in schools, and the play environment should be designed to maximise play (Johnson et al., 2005). This is based on the importance of play in overall development: play is seen as a crucial part of children's physical, cognitive, emotional and social development, and it also encourages creativity and learning (Kieff & Casberque, 2000; Meadows, 1992; Vygotsky, 1978; Wood & Attfield, 2005).

Play covers a broad category of activities—social games, pretence games, playing with toys, and unspecified indoor and outdoor play—and it can be stimulated in different contexts (Pellegrini, 1988, 2005; Wood & Attfield, 2005). Play is also seen as a tool in producing and reproducing culture (Corsaro, 2003, 2005). This view adapts the sociocultural perspective of children's activities and thus attempts to overcome the dualism of the child and the environment by blending them together (Johnson et al., 2005).

Today's children in the industrialised countries are getting short-changed in respect of opportunities to play, and they do not spend much time playing out-of-doors (Scarlett et al., 2005). Although there are numerous criteria for play environments (Wardle, 2003), they are mainly set by adults and municipal authorities; children's authentic perspective is somewhat missing. To find out what outdoor environments should afford, we let the children's voice to be heard. In this study, we look for the children's perspective and an answer to the following research question: 'In what kinds of environments do preschool children want to play?' A sub-question follows: 'In what kinds of environments do boys and girls want to play?' We examine the outdoor play environment and the play interests of girls and boys in the context of pre-primary education.

Gender play

Gender is defined as a cultural construction that comes into being by doing, and it is considered as the way of interacting (Butler 1990; Thorne 1993), in our case in collaboration through play and games. Children themselves are active in reinforcing and weakening gender borders (Corsaro, 2003). Schoolyards and playgrounds are places where those processes are particularly intriguing. Children learn gender as a social

category: the culture that is 'natural' for one's own gender. They know clearly that they belong either to the group of males or to the group of females and that their identity is bound into this membership (Maccoby, 1988). The membership is important, but not sufficient. Through joint activities children have possibilities to learn of and from the opposite gender.

Generally, boys and girls seem to play separately because of different play styles (Dunn, 2004). In the school context, children are used to playing separately; girls with girls and boys with boys (Dunn, 2004; Maccoby, 1988; Thorne, 1993). The crowded and public nature of schools and the continual presence of power and evaluation make the separation of genders more probable (Thorne, 1993). Adults working with children see boys and girls qualitatively dissimilar (Martino et al., 2004), and educators are almost always unaware of the biased behaviour they exhibit (Lee-Thomas et al., 2005; Sanders, 2003). These findings lead to gendered cultures, although the whole process is more multifaceted. That is why it is important to conduct research in which children's views are highlighted and gendered interests examined.

Research methodology

The empirical data consists of drawings by children aged from six to seven and of discussions with them. The children were told that the results of their creative ideating would be used for real purposes: to design new types of playgrounds in their home town. We collected data from five preschools around the city of Rovaniemi in the northern part of Finland. The preschools were chosen randomly, and those children (N=49; 31 boys and 18 girls) who had written permission from their parents took part in the study. We arranged a total of 15 creation sessions, each lasting 30 to 45 minutes and involving six groups of boys, five groups of girls, and four mixed groups. During the creation sessions we sat on the floor and told a frame story in order to stimulate the children's imagination. We asked them to describe the environment where they would like to play: what kinds of activities it affords and what kinds of elements there are.

After the frame setting, the children drew pictures and discussed animatedly, adopting the role of playground designer.

We named this method 'image crafting', because during the process the children form an image of the ideal play environment. In doing this their imagination and the whole body is involved: they talk, play, draw, suggest and look around to boost their inspiration. Crafting refers to the means through which the image is processed into a visible form. Image crafting suits children because imagining, drawing, colouring and playing are natural ways for them to express their intentions and desires. The data from the creation sessions functions well as qualitative material

for the grounded theory, and the method is suitable for purposes whose goal is to identify concealed or unfamiliar phenomena (Glaser, 1978; Strauss & Corbin, 1998). In this case, the intention was not to create a theory of the individual; rather the emphasis was on finding new ways to look at children's play environments and the hidden structures of boys' and girls' interests.

Theoretical sampling and coding process

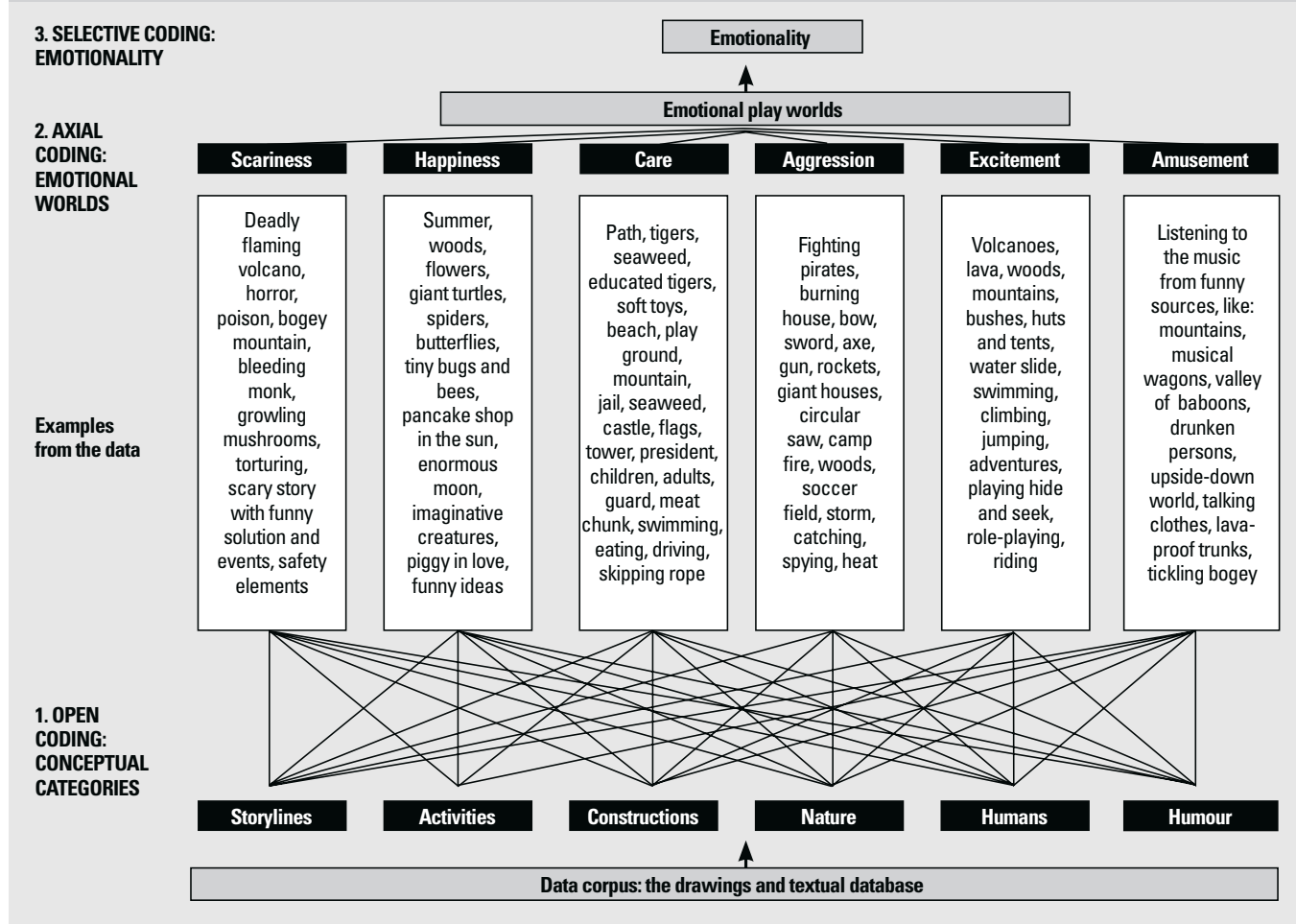
Theoretical sampling, which includes data collection, aims to maximise the opportunities to explore emerging concepts; and it continued until each category was saturated (Glaser, 1978). The coding process, which was executed using the N*Vivo qualitative analysing software, is described in the following figure (1).

The first phase, (1) open coding, involved identifying categories and properties of the data, and each category is a conceptual element of a theory. The categories and properties were generated by comparing the features of the activities and elements of the play environments (Glaser & Strauss, 1967). Although the words, themes and single pictures and sets of pictures were relevant as units of analysis, the storylines were considered and taken into account as one category. As a result of the inductive and comparative process, the categories of the first phase of the coding process included storylines, activities, constructions, nature, humans and humour (Hyvönen & Juujärvi, 2004, 2005).

The next phase, (2) axial coding, overlaps with the open coding process. The aim of axial coding is to reassemble the concepts of open coding with propositions about their relationships. Axial coding requires constant questioning: what is this about (Glaser, 1978)? In our case, we looked for answers to questions such as: What is the meaning of the president or mushroom-shaped slide? What is the causal connection between jail, persons and animals? We found that the answers were related to emotional play worlds, where environment and activities are intertwined. An emotional world is seen as a whole entity which contains a storyline and tells about the quality of the play environment. The quality was seen in the way children played, once they had designed the environment, and in the incidents along the storyline.

The children did not just design the environments with different facilities and activities, but used their imagination and ability to pretend; so they played during the designing. Play expressed not only social behaviour but also strong emotional tones. That is one reason play environments became emotional worlds of play, and emotions were chosen as the core category of (3) the selective coding process. The generation of theory takes place around the core category (Glaser, 1978), and consequently three different views were conveyed (Figure 3). As a theoretical result of this study, emotional play worlds indicate three

Figure 1. Illustration of the coding process and the phases of (1) open, (2) axial and (3) selective coding



views: 1) emotions and emotional worlds are rich and various; 2) there is an obvious desire for physical activity and nature; and 3) genders are related to common and divergent emotional worlds, where stereotypical, hidden and joint interests arise.

Results

In what kinds of environments do preschool children want to play?

The children created the following six emotional worlds during the sessions. We have named the worlds using the children's own expressions. The first world is 'pretend torture'.

'Pretend torture'—scariness

Children discussed scariness, horror and fear in 11 out of 15 sessions. Fear appeared more as a positive than a negative feeling, and it was accompanied by an element of safety; for example, protective adults, guards, the president or mother. Children, especially girls, want to feel fear; for instance, in a dark and narrow hut, inside a crocodile's mouth accompanied by a bleeding monk, on a huge slide, or in the bogey

mountains. They also used words such as long nails, burning dogs, dying, spiders, scorpions, crying, attacking tigers, huge fireplaces, forest fires, haunting, angry and nice ghosts, dangers, skeletons and frightening noises.

During the sessions the children played with the idea of frightening situations. Even the music coming from the mushroom-shaped radio was considered as fearsome, because the designed environment itself had the same property: fearsomeness. The very first suggestion of one girl's group was to offer haunting places with lots of ghosts to represent fear and horror. According to the characteristics of mature play (Bodrova & Leong, 2003), themes should be flexible in imaginary situations in order for children to be able to negotiate on the plot, roles and themes, and adjust their interaction with frightfulness. It seems that children are able to regulate the relation between fear and safety, once they find the environment trusting and once they are committed to role-playing and the plot. Girls created scary stories taking place in scary environments, but once the imaginative environment became too frightening, they changed the plot cleverly from fear to harmless activities.

'The sun is always shining'—happiness

Although boys drew flowers and hearts they did not generate larger entities of happiness and beauty. Girls developed peaceful and joyful feelings of summer, beach, magic and the four seasons. Fantastic woods, flowers, tiny bugs, butterflies, imaginative creatures, rainbows, animals, flying dresses and several suns can be found in these environments. The swing is so huge that it throws children to the sun; actually, there are 10 suns in one of the play worlds. In the sun there is a shop selling pancakes. Girls portrayed how they can jump to the sun, fry pancakes, and then go into a hut to eat pancakes. The sun is seen as a place where play is possible; 'the sun has feet' and it is holding traffic signs. There is also a kind of trampoline which makes a way to an enormous moon. The girls described their play world by saying 'This is a fairyland'. The fairyland does not comprise aggression or negative-toned emotional qualities, but highlights happiness, which may describe girls' regulatory behaviour in presenting themselves as 'good'. Especially in peer groups, girls collectively regulate normative femininity, which includes qualities such as nice, truthful and good behaviour (Kehily et al., 2002).

'I think it eats seaweed'—care

In their drawings, girls and boys designed play areas where animals are free and children take care of them. Boys played the role of a rescuer or helper, for instance by planning a safe and comfortable home and an environment for the turtle and his friends. The home lies in a castle high in the mountains. As well, nutrition is taken care of: Nick drew a path to the sea and then some seaweed. 'Look, Eric! There is seaweed, food for the turtle. One bunch of that is enough for one day'. Eric says: 'Here is a little pool. He can go from there and get here ... He swims here and collects his food there'.

Care is understood as commitment, relatedness, and physical, emotional and social care (Vogt, 2002). Care in the form of giving and receiving belongs to the area of emotional attachment, which is crucial in the child–parent relationship (Oatley & Jenkins, 2003). In this case, the boys practised emotional attachment as caregivers for pretend, humanised animals. According to Oatley and Jenkins (2003), caregiving always has an object, which here was to make sure that the turtle is content, by means of nurture, help and support. As a whole, animals seem to be an essential part of children's play worlds, because both girls and boys created lots of animals into their environments and described nature mainly as a shared realm of animals and children. Animals have different roles: they represent 'me', a friend, parents, children, or are just animals. Animals are described as interactive, emotional and intentional humans who can talk and think.

'The fighting ships' and 'a rocket that sets a park on fire'—aggression

In two sessions the boys showed aggressive, destroying, noisy and competitive patterns of behaviour by playing

fighting pirates or by making an aggressive mess in a burning house. Although the activity of one boy group was based on competition in an environment of fight, they still had to engage in problem-solving during the combats against one another's pirate ships. The activity transformed into collaborative role-playing, and so the empathy in the context was strong. Although the play activity demonstrated aggression, the boys themselves were not aggressive but playful. The world of aggression should be considered against the theory of rough-and-tumble play (RT), which is quite common in outdoor play environments. The play patterns in this study do not meet all the features connected with RT. However, it is seen as a behavioural strategy used for the most part by boys to gain and maintain a certain status (Pellegrini, 1988, 2005). Although Pellegrini sees RT as a positive force in children's development, the line between good and bad play is sometimes difficult to draw (Johnson et al., 2005; Scarlett et al., 2005).

'Lava-proof trunks are needed'—excitement

The world of excitement includes feelings of enthusiasm and joy. Typical excitement worlds include imaginative situations where nothing is impossible. Both boys and girls wish to experience excitement in many ways. Their fantasies take place in a fascinating environment composed of real and imaginative features. For example, volcanoes, which children realise are dangerous, are favoured by boys and girls in vivid and playful ways. 'Spiral lava' and 'a lava slide' are some examples of the exciting features in their planning. They wanted to have narrow, high, dark, hot, or wide components in their play area. Children prefer a place where they can create emotionally powerful adventures that are terrifying but safe and fun.

During the drawing sessions, a group of boys designed a hot environment. Suddenly the boys became heated, too. This example shows that, in pursuance of idea-generation and imagined play, children put their souls into the environment and into the conditions it affords, and feel them very concretely, even at the bodily level. The following extract shows that Peter felt heated up when the boys created a hot atmosphere for their play world.

Peter: I'll put [draw] some brown here, because it is so hot in here.

Henry: Ha-ha! I'm going to make this hot too.

Andy: I'm going to put some smoke here.

Peter (leaves the others and goes under the table nearby): It is too hot, so I'm sitting here.

'Even the eyes are standing upright'—amusement

Common for both girls and boys were play worlds of amusement and humour, where 'fooling around' and playing with ideas characterised the activities. Humour was mostly expressed verbally and behaviourally instead of by drawing funny ideas on paper. Although humour appeared in different forms among boys and girls, a common conclusion can be

drawn: unusual and exceptionally imaginary phenomena make children laugh. Some children had a private idea of humour which they kept secret. They gave hints about funny things but never revealed the secret behind them. This indicates that humour is a cognitive, emotional, and social phenomenon (McGhee, 2002); even if the secret itself is not revealed, the situation is shared. In our research, the sense of humour and imitation of other children are emphasised as the triggering power of imagination and creative processes (Hyvönen & Juujärvi, 2005).

The environments related to the girls' presentations of humour include places where everything is upside-down or closets contain talking clothes. Girls also invented funny things, such as 'piggy in love' and 'the mountain that sings Finnish pop songs of a certain type'. In the traffic theme, girls found novel purposes for traffic lights: they can be funny and used to regulate children's turns at a playground. Among girls, humour is considered as one type of play, in which an enjoyable, unreal world of humour performs the same cognitive, social and emotional functions as play in general (Scarlett et al., 2005).

Among the boys, situations of idea-generation and shared laughter arose easily. The boys' humour elements included semi-wicked ideas, for example 'the valley of baboons'. Playing with words indicates a child's verbal competence, and McGhee (2002) defines it as the fourth stage of humour development. At the highest stage (fifth) the child begins to understand that the humour has a meaning; that the

absurd has a cognitive sense. Another group of boys was a bit anxious and laughed and shouted easily. They obviously tried to show their competence within the social hierarchy of the group; that is they tried to be 'cool guys' (Pellegrini, 1988, 2005). The boys found the following conversation very amusing:

Henry: Volcano! It's going to erupt!

Researcher: Can one play in this volcano, Henry?

Henry: Oh no, no way!

[Other boys laugh]

Henry: Well, your bottom will be burnt in there!

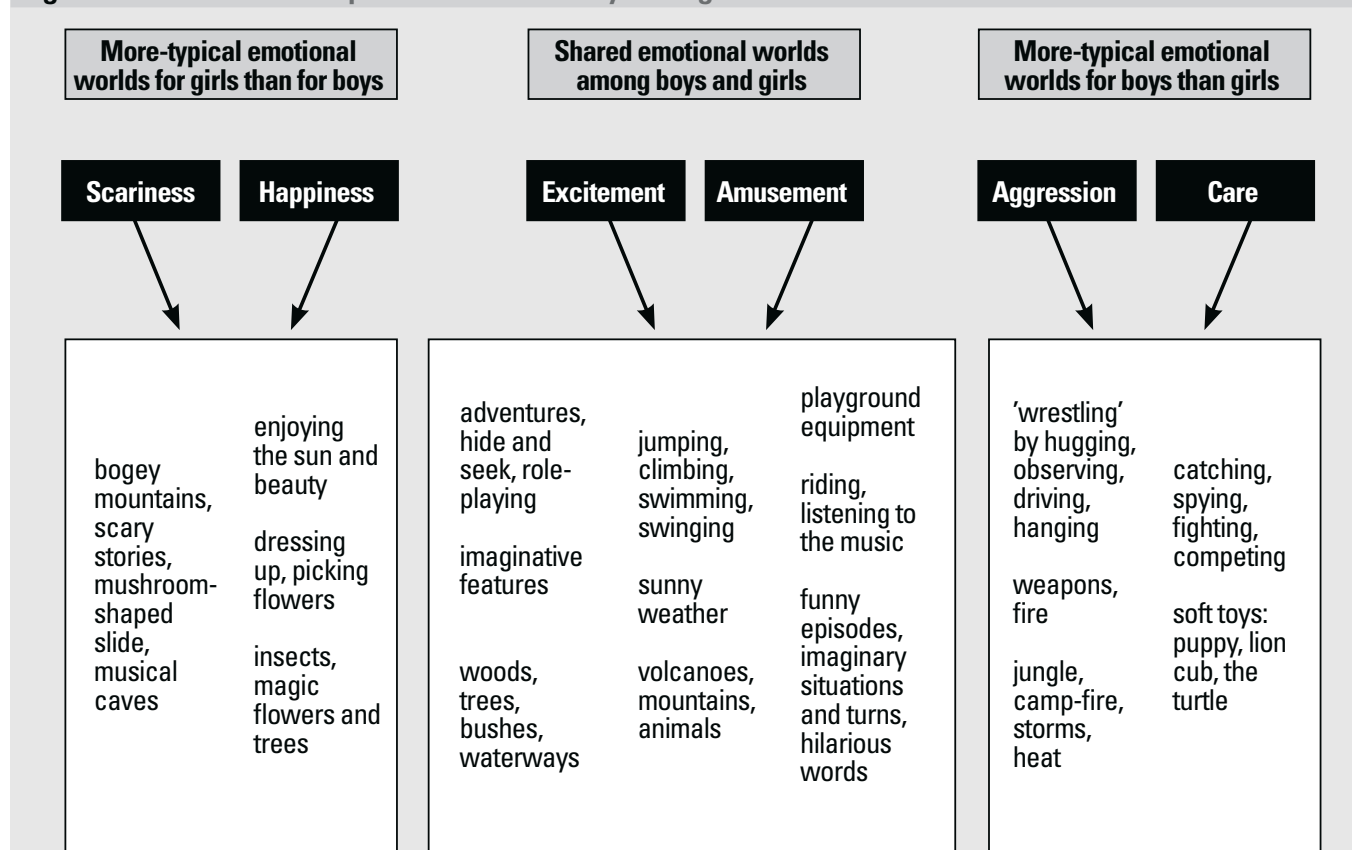
[Other boys laugh]

After a good laugh they settled down and carried on with the session.

In what kinds of environments do boys and girls want to play?

Femininity and masculinity are mainly fictitious conceptions that conceivably relate to fantasies deeply embedded in the social world (Walkerdine, 1990, 1991); the results of this study brought up both masculine and feminine interpretations of the prevailing culture, but in addition, border crossing appeared as well (Hyvönen & Juujärvi, 2004, 2005). In the following figure (2), we have summarised the interests of the boys, the girls and their common objects of interest.

Figure 2. Common and separate themes of boys and girls



Common themes for boys and girls found in the play worlds were excitement and amusement, both accompanied with a feeling of safety. Activities, adventures, role-playing and nature—imaginary situations can be found in these worlds. Common themes are the basis for collaborative activities. The worlds of care and aggressive destruction and competition were more typical of boys, while the worlds of happiness, beauty, fairy features and scariness were more characteristic of girls. In the drawing situations, boys followed other boys and girls followed other girls. This pattern was often seen and it illustrates the cultural ways of gender construction.

Ambivalent emotional worlds were characteristic of both genders. On the one hand, the girls experienced themselves as parts of the worlds of happiness and summer. On the other hand, they felt they were parts of the worlds of fright and horror. Boys also enjoyed two opposite worlds. On the one hand they constructed a home environment and expressed care and nurture; on the other they competed, broke and destroyed. The experiences were very different, and yet very strong. As Bakhtin (1984) illustrates, the world is ambivalent, having two opposite poles, and these two poles are also seen in the interests of boys and girls. It is interesting to consider the boys' worlds of aggression and humour against Bakhtin's explanation of carnivals and marketplaces, where laughing together, shouting and aggression were the ways of having fun.

Aggression and care characterised more boys than girls

The boys' world, based on aggression, destruction and competition, is an interesting issue from the point of view of play environments. Although the boys' play can be seen as interaction between individuals, the question arises as to what extent it is ethically appropriate to encourage children to destruction and aggression. If there are destructive elements, they should be balanced with constructive ones. Attention should be paid to guided, cooperative actions, where interactional skills, such as impulsivity control, can be safely practised. A game in which common good, instead of individual pursuit of benefit, is rewarded might provide one example. Also, humour in play provides children socially appropriate means of expressing anger and affords alternative ways to cope with socially demanding situations (McGhee, 2002).

It was interesting to notice that boys especially were ready to create a play world founded on the ideas of care and nurture. The boys were concerned with caring and nurturing roles which corresponded with social positions that exist in society (Corsaro, 2003, 2005); in this case the play resembled family role-playing, including the roles of friends, soldiers, pets, the president etc. In our view, the cultural 'stigma' attached to boys generally

restricts the experiencing and signalling of elements such as care and nurture. Care is often linked to the hegemony of femininity (Rodrigues et al., 2006).

Happiness and scariness characterised more girls than boys

The girls mentioned that their emotional play world is like a fairyland full of fantasies, fiction, wishes and romance, resembling mostly classic fairy tales (Walkerdine, 1991). The fantasies of girls are often related to sexuality and a desire to find a prince of their dreams or a boyfriend (Boyle et al., 2003; Walkerdine 1991), but this data did not indicate wishes concerning heterosexual relations.

Fright, uncontrollability, unpredictability, dangerousness and disgustingness bear a relation to fear (Armfield, 2006). In accordance with Armfield's model of the etiology of fear, girls constructed a scary environment and storyline, but they controlled the situation, predicted the events, and regulated the danger and 'disgustingness' of the situation. In this manner they didn't feel real fear or anxiety, only entertaining scariness.

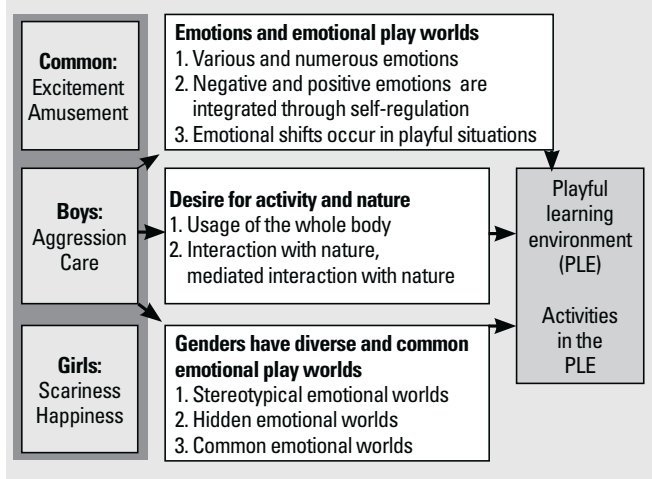
Theoretical summary: Emotional worlds as play environments for preschool children

The aim of this theoretical summary is to provide a theoretical basis for play environments in the preschool context. The theory is an integrated set of propositions comprising three views on emotional worlds (Figure 3): (1) emotions and emotional words are rich and various; (2) there is an obvious desire for physical activity and nature; and (3) the genders have diverging and common emotional worlds.

As illustrated in Figure 3, the theory is applicable in the context of outdoor playgrounds called Playful Learning Environments (PLE), which provide an alternative to classrooms as learning environments in pre-primary and basic education. The goal of the PLEs is to increase children's play and games during the school day. Play facilities can be augmented using Radio Frequency Identification Devices (RFID), although the PLE is also effective without these. Some ready-tailored games are programmed to comply with both the RFID system and outdoor equipment. In the near future, children will be able to tailor new games with play-creator software and construct play worlds according to their interests. PLEs are designed and constructed in the city of Rovaniemi, Finland.

The theoretical summary offers explanations to phenomena (Strauss & Corbin, 1998); in this case the summary describes emotional worlds created by children in playful situations. Children's emotional worlds are rich and diverse. In addition, bodily activities and nature are important in play environments. Finally, the genders'

Figure 3. The theoretical summary of this study



emotional play worlds represent stereotypical forms, but also hidden and combined forms. The theoretical summary is an integrated set of hypotheses and its credibility should be won through integration, relevance and workability (Glaser, 1978). Glaser and Strauss (1998) see that 'fit' is the strength of grounded theory in indicating credibility, and it is a powerful condition for understanding and usefulness. 'Fit' expresses the correspondence to social reality and serves the central function of enabling external validation of research in social processes (Lomborg & Kirkevold, 2003). As Strauss and Corbin (1998, p. 25) state, 'The theory does more than provide understanding or paint a vivid picture. It enables users to explain and predict events, thereby providing guides to action.' Consequently, the following arguments illustrate phenomena related to play environments and gender preferences. They also provide guidelines for educators, researchers and playground designers.

Emotions and emotional play words are rich and diverse

Children's drawings, discussions and creative processes represent a huge variety of different emotions. For instance, the world of happiness includes so many different variations of emotions that no term seemed to be extensive enough to illustrate the whole world. However, the question of positive and negative emotions became blurred because the so-called negative emotions were also experienced as positive ones, and different emotions were intertwined and controlled by self-regulation. The positive-negative dimension is somewhat confusing, however, and therefore dimensions indicating approach or achievement are more adequate (Oatley & Jenkins, 2003).

This research indicates that play also takes place in children's bodies and imagination. The emotional intensity was occasionally so strong that the children,

who were at first playground designers, could not stay in this role but started to play with the paper they were drawing on; they walked on it and used their toes, fingers and voices in play. This leads to the conclusion that the most simplified play environment exists in a child and his/her current environment, where creativity is afforded and encouraged. In addition to shifting the role from designer to player, the children shifted the focus in another direction: they focused on those for whom they were designing the environment. For instance, one group of boys shifted their focus from 'what would I like to have' to 'what the animal needs'. Little by little, the desires and needs of 'me' turned to the needs of someone else.

It seemed unusual to the children to stay outsiders; instead, they involved themselves in playing and seeing things from another view. This indicates that this kind of play, where creativity is essential, provided possibilities to empathise and to experience situations from the perspective of others.

How to take into account the abundance of emotions related to play environments? Interaction between children and the environment is crucial (Moyles, 1989; Price & Rogers, 2004): the environment should offer elements that can be processed for diverse purposes through imagination. The children were fascinated, for example, by big stones, water, heat, coldness, darkness, tricky situations and collisions into walls. These elements afford tactile, emotional, social and cognitive opportunities in play.

An obvious desire for physical activity and nature

According to our data, both genders want to play and engage in physical activities. Only two girl groups referred to inert behaviour (lying like a cat, lying under the sun) in their playing environment. Both boys and girls want to climb, jump, slide, swing, role-play, respond to music, play hide-and-seek and have adventures. Furthermore, boys want to run, swim, catch (a special version was 'linear catch'), spy, ride, drive, observe, fight, compete, dive, 'wrestle' by hugging and hang on stall bars. Girls want to ride, swim, dress up, pick flowers and enjoy the sun. However, the differences between boys and girls are not significant.

Almost all the ideas are connected to nature: the scene (woods, meadows, lakes, ponds, rivers, rocks, jungle etc.); the details of the weather (storm, sun, rain etc.); and different kinds of plants are described. When asked why the woods are so much fun, Lucy answered: 'I like to climb trees and upon one big rock.' Ghost stories, created mainly by girls, take place in a mountain area. Even music is combined with nature in the form of lightning. The expectations

of Finnish children are often connected with nature, because they are close to nature in their activities. How could we take this special relationship into account in the construction of new playgrounds? A built environment can never replace the relationship that a child has with nature, but it may support knowledge and understanding of nature by affording activities that engage children in the exploration of natural phenomena.

The genders have diverse and common emotional worlds

Our goal was to find themes that are hidden under the stereotypical assumptions in respect of boys and girls. It was interesting to find out that boys showed care and nurture, and girls were attracted by scariness. We conclude that boys should be afforded play environments where care and nurture can be freely expressed in a way suitable for them. The process of constructing a home-like environment and creating characters who live there seemed to be important and natural for the boys. For girls, a scary but still safe play world is an exciting way to bring imagination into play and to interact physically with the environment. However, emotional worlds are multifaceted and ambivalent.

Another goal was to find common interests for boys and girls and to encourage them to play together. Collaborative play facilitates learning from each other, especially the learning of languages (Tannen, 1995), habits, attitudes, interactive style, emotion regulation and play patterns (Maccoby, 1988) that are culturally somewhat different with boys and girls. On the basis of this material, the shared domains of interest are natural environments where physical activity, adventures, excitement and humour can be experienced comprehensively and safely. In addition, music and imaginative features seem to play a vital role for both girls and boys. Adventures enable children to test their skills and capabilities in challenging and imaginative environments.

Boys and girls seem to need plenty of activities, and most of the activities highlight togetherness and collaborative goals. The collaborative activities can be supported by developing new games and plays in which cooperative action is needed and where the activities traverse the traditional gender borders. By cooperating and transcending these value-laden borders, children can learn things that are rarely brought out in one-gender groups. Children's emotional play worlds made us think about how encouragement, motivation and support of the expectations of both genders can elicit children's tacit talent and creativity.

Conclusion

This study was conducted in the context of pre-primary education, where learning takes place through play. We found that entertainment and excitement—found in physical activities, adventures and nature—are in many ways common interests for boys and girls. We also concluded that playgrounds should offer possibilities for fantasy, delight and imagination. These findings are significant in the contexts of joint activities and outdoor playground design.

As a theoretical summary of this research, playground designers, educators and researchers are encouraged to consider that children's emotions and emotional play worlds are rich and vivid, that physical activity and nature are important to children, and that the common interests of boys and girls—excitement and entertainment—could provide a base for collaborative play. The preliminary outcomes have already been utilised in designing pilot playful learning environments (PLE) in Rovaniemi, Finland. They will also be useful in developing PLEs further for school settings and in designing various play and game applications to meet the challenges of education. The outcomes should be of use in the work of practitioners and researchers. The impacts on children will appear when educators recognise gender choices; otherwise children's play might be inhibited (Lee-Thomas et al., 2005).

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